
VICTORIAN ENTOMOLOGIST

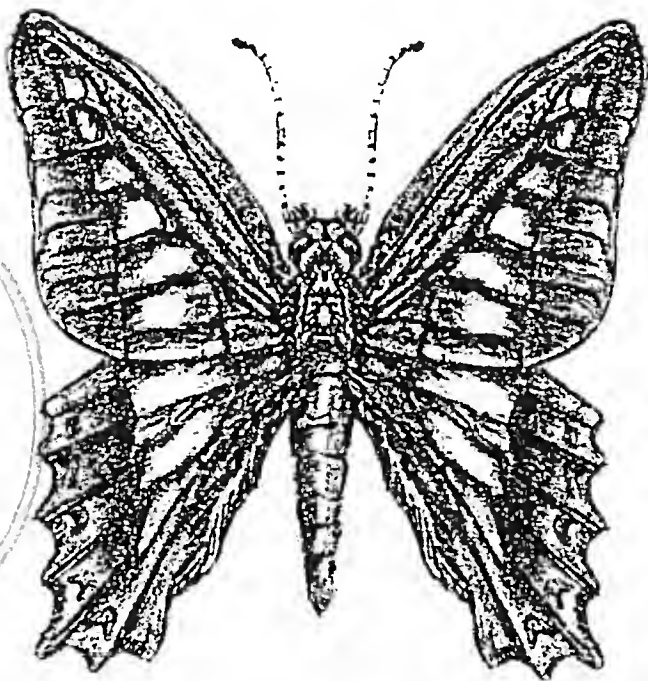


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News Bulletin of The Entomological Society of Victoria Inc.

THE ENTOMOLOGICAL SOCIETY OF VICTORIA (Inc)

MEMBERSHIP

Any person with an interest in entomology shall be eligible for Ordinary membership. Members of the Society include professional, amateur and student entomologists, all of whom receive the Society's News Bulletin, the Victorian Entomologist.

OBJECTIVES

The aims of the Society are:

- (a) to stimulate the scientific study and discussion of all aspects of entomology,
- (b) to gather, disseminate and record knowledge of all identifiable Australian insect species,
- (c) to compile a comprehensive list of all Victorian insect species,
- (d) to bring together in a congenial but scientific atmosphere all persons interested in entomology.

MEETINGS

The Society's meetings are held at 215 Franklin Street, Melbourne (Opposite the Queen Victoria Market) Melway reference Map 2F B1 at 8 p.m. on the third Friday of even months, with the possible exception of the December meeting which may be held earlier. Lectures by guest speakers or members are a feature of many meetings at which there is ample opportunity for informal discussion between members with similar interests. Forums are also conducted by members on their own particular interest so that others may participate in discussions.

SUBSCRIPTIONS

Ordinary Member	\$20.00
Country Member	\$16.00 (Over 100 km from GPO Melbourne)
Student Member	\$12.00
Associate Member	\$ 5.00 (No News Bulletin)

No additional fee is payable for overseas posting by surface mail of the news bulletin. Associate Members, resident at the same address as, and being immediate relatives of an ordinary Member, do not automatically receive the Society's publications but in all other respects rank as ordinary Members.

Cover design by Alan Hyman.

Cover illustration of the Blue Triangle butterfly, *Graphium sarpedon* L. by R. Millen.

MINUTES OF THE GENERAL MEETING, 11 DECEMBER 1998

The President, A. Kellehear, opened the General Meeting at 8:02 pm

Present: P. Carwardine, D. Dobrosak, I. Endersby, A. Kellehear, R. McMahon, C. Peterson, S. Smith, D. Stewart, J. Tinetti.

Apologies: E. & P. Grey, N. Stewart.

Minutes:

Minutes of the 16 October 1998 General Meeting [*Vic. Ent.* 28(6): 101] were accepted (I. Endersby/D. Stewart).

Treasurer's Report: The Treasurer presented the financial statement as of 11 December 1998: Account balances stand at: General Account \$4,394; Le Souëf Award Account \$3,387. Accepted (I. Endersby/R. McPherson).

Editor's Report:

The Editor reported that sufficient papers were in hand for the February issue of *Victorian Entomologist* but more were required for the April issue.

General Business:

Membership: An application for membership was received from Mr G. Weeks.

Le Souëf Award Winner: The secretary announced the Mr. Bert Brunet was the 1998 winner of the Le Souëf Award (refer to page 3 of this issue for a summary of Mr Brunet's achievements).

Life Membership: Council nominated Tim New and Peter Carwardine for Life Membership at the October Council meeting in recognition of their outstanding contribution to the Society. Tim New held the position of Vice President in 1976, President from 1977 to 1979 and Secretary from 1982 till 1991. Peter Carwardine has held various Council positions including 4 years as Vice President (1980, 1981, 1982, 1992), 6 years as President (1980, 1981, 1982, 1993, 1994, 1995) and an uninterrupted position as Excursion Secretary from 1976 till the present.

The nominations were endorsed by those present at the meeting.

In recognition of the service of these two members, a vote to endow Life Membership upon Tim New and Peter Carwardine will be sought at the February 1999 General Meeting.

Members' Night: Exhibits/Presentations

1. CDROM Demonstrations.

Ian Endersby demonstrated a series of CR ROMs which would be of interest to members:

LucID is an interactive identification program that has the organisms to be identified and their distinguishing characters in a matrix format rather than the conventional dichotomous key. By choosing a particular character, those organisms which don't exhibit it are eliminated and then the next character chosen. The demonstration disk includes a key to

insect orders. When an identification is complete, text and pictures illustrate the selected order as confirmation. Members were impressed with the video clip of a coccinellid eating aphids.

Grapes BugMatch opens with a diagram of a grape vine. Clicking on any part of it (roots, shoots, flowers, berries etc.) gives a list and photographs of species (insect and fungal) that attack that area. A fact sheet is then available giving life cycles, disease symptoms and lots more photographs (29 for Light Brown Apple Moth) covering many aspects of biology and control. Management options and a chemical database are included.

NemaSys, while not strictly entomological, is another example of CDROMs that have been produced for agriculturists. It gives a general introduction to the biology of nematodes, demonstrates sampling and extraction techniques, and provides an illustrated dichotomous key to pest species. Fact sheets are available, grouped by host, and a section on management options is included.

Viridans Victorian Butterfly Database was used to check the photographs and distribution of species of member's particular interest.

2. Internet Demonstration

Chris Peterson provided a guided tour of the Internet, showing the main sites of entomological interest to those present. Sites visited included the Department of Entomology at Iowa State University – <http://www.ent.iastate.edu/List/> which has a large list of URLs to sites of entomological interest including discussion groups, mailing lists, images and clubs and societies around the world.

3. Slides of Insects, What Insect is that?

Allan Kellehear presented a series of slides of insects and he invited the audience to name the species. The named species included the Tailed Emperor, *Polyura pyrrhus sempronius*.

The meeting was closed by the President at 9:10 pm after which those present enjoyed light refreshments and congenial conversation.

1998 WINNER OF ZOO LE SOUËF MEMORIAL AWARD

Mr B. L. Brunet is the 1998 winner of the Zoo Le Souëf Memorial Award. Mr. Brunet received the Zoo Le Souëf Award in 1987 and was also the joint winner of the 1995 Gilbert Whitley Award. He has made a significant contribution to public promotion of entomology through his radio and TV appearances as well as exhibitions and photographs.

Mr Brunet has authored two books since 1987, *The Silken Web*, a Natural History of Australian Spiders published by Reed Books Australia and *Spiderwatch*, A guide to Australian Spiders.

Mr Brunet currently holds the position of Honorary Treasurer and Honorary Editor of the Society for Insect Studies.

A summary of Mr. Brunet's recent contributions to entomology include the following:

- Presentation of talks to the Royal Entomological Society of New South Wales:
1988 - Being With Nature.
- Presentation of a talk to the National Parks & Wildlife Association of New South Wales:
1988 - Insects occurring within the Royal National Park of New South Wales.
- Presentation of talks to the Society for Insect Studies:
1991 - Getting to Know Australian Insects.
1993 - The Orders of Insects and their Roles in Nature
1995 - Arthropods of the Eastern Suburbs
- Exhibitions of Insects to promote Australian Entomology:
February 1995- Display at Royal Randwick Village Shopping Centre
May 1995 Display at the Australian Museum Open Day
May 1998 Display at the Australian Museum Open Day - Arthropods of the World

Radio and TV presentations:

- 3LO Gael Jennings - Australian Spiders:
- Channel 9 Kerry-Anne's Midday Show - Australian Spiders:

Mr Brunet has contributed numerous photographs, drawings, illustrations and cartoons to circulars, provided numerous entomological displays at public events to promote entomology and toured numerous schools promoting knowledge of Insect Ecology.

The Zoo Le Souëf Memorial Award Committee congratulates Mr Bert Brunet on his achievements and contributions to entomology.

Butterfly Watching In Tasmania - Part IV

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Part three (Dunn 1998) of this series covered the region from the capital city of Hobart to the Tasman Peninsula and along the eastern coast via Triabunna, including the alpine Lake Leake district, to Coles Bay near the Freycinet Peninsula. This fourth section continues my March 1996 visit commencing at Freycinet National Park, and meandering north to the seaside resort of St Helens and then inland, via the montane Scottsdale region and The Sideling, to the city of Launceston on the Tamar River. Herein, the Australian admiral is recorded to almost 1300m a.s.l. on Mount Barrow, an important altitudinal extension to that in the literature.

Freycinet National Park, readily accessible to the tourist by a series of excellent walking trails, is renowned for its red granite mountains and pleasant beaches. Much of the peninsula is covered by windswept heathlands, and combined with the surrounding ocean views, it reminded me of Wilson's Promontory in southern Victoria. In the morning of March 11th, I hiked through open eucalypt forest to The Hazard's saddle where, from the lookout, I beheld the beautiful aquamarine waters of Wineglass Bay - the vista which adorns so many Tasmanian postcards. The sun was shining, yet it was still cool being mid morning so it was no surprise that butterflies were conspicuous by their absence. This uncrowded place proved of great solace to me that Monday, so I stayed at the lookout for an hour enjoying its tranquillity before descending to Honeymoon Bay. Here, in a soft grassy clearing amongst foreshore heath-woodland, a solitary female *Heteronympha merope* and a couple of *Pieris rapae* were sighted - quite a disappointing list for the time spent in this National Park! No doubt, in sheltered gullies where the flora is more diverse other butterfly species could be expected, but I had little time to search these out and many more places yet to visit.

Close to midday, and attracted by a number of busy brown butterflies crossing the road, I stopped some 800 metres south of Barbers Creek in rather uninteresting rural habitat, close to sea level, and some eight kilometres south-west of the seaside town of Bicheno. Remarkable as it seems, this road shoulder area, which comprised only grassy wasteland bordered by extensive clover pasture, proved the most productive site in terms of butterfly species richness on the whole island! At least eight species were recognised here during a 15 minute break. Of these, *Heteronympha penelope diemeni*, *H. merope*, *Geitoneura klugii*, *Junonia villida*, *Pieris rapae* and *Zizina labradus* had been familiar sights at a number of other places too, but also included were *Vanessa kershawi*, *Taractrocera papyria* and *Pasma tasmanica*.

Pasma tasmanica, a small black-looking skipper in flight, was seen darting rapidly and inconspicuously amongst soft grasses. One, of two males seen, stopped briefly to feed at a yellow flatweed-type daisy flower, and in so doing, both forewings and hindwings were opened in a V-shape, a similar stance to that of a mainland trapezitine, *Toxidia parvula*. The similarity initially perplexed me and I could not think of its name. After feeding it settled to rest on a grass seed head with wings closed, whereupon it was given closer inspection. The characteristic pair of pale postmedian hindwing spots both above and beneath, otherwise seen only in the tropical genus *Neohesperilla*, resolved the matter.

Later, I found a female of the species resting amongst bracken understorey in dry sclerophyll woodlands, further north, some two kilometres south-east of Elephant Pass (at ca. 100m asl), en route to St Marys. Couchman and Couchman (1977) commented that Tasmanian *P. tasmanica*

are inseparable from those from the mainland. Certainly in terms of maculation this seems more or less so except that the adults appear generally a little smaller and hence probably represent a poorly differentiated local form, which one might expect, given their geographic isolation.

The Painted lady (*Vanessa kershawi*) near Barbers Creek was in fresh condition, and I noted the presence of a distal-postmedian white spot on the forewing above situated between veins CuA1 and CuA2. McCubbin (1971) illustrated a female of this uncommon form, and I have encountered similar examples on the mainland as well (both in Victoria and the ACT). Beyond Australia, a parallel form occurs in *V. cardui*, and an homologous white spot is also occasionally present in the European Red Admiral (*V. atalanta*) (northern African examples of both these species showing this character are illustrated by Tennent 1996); indeed, I subsequently chanced upon a Red Admiral of this form feeding at a buddleia flower near The Hague, The Netherlands during Sept. 1997. Taken together this evidence suggests the white-spot character is derived from an ancient generic precursor species.

The mild climate, picturesque setting, great fishing and sandy beaches make Bicheno one of the more popular weekend-away holiday destinations for Tasmanians. After lunch I walked to the Blow Hole and then to the small Lookout National Park near the centre of town. The weather was now quite warm, and a few *Cicadetta* cicadas were calling and flying amongst the coastal shrubbery as I passed. They sounded very much like *C. torrida* (from the Port Phillip Bay area near Melbourne) but I did not examine any to confirm their identity. Nevertheless, *C. torrida* is the most widespread and abundant cicada in Tasmania (Moss 1989) so my guess is likely. As I walked past a localised patch of Kangaroo grass, *Themeda triandra* (Poaceae) growing in a sheltered glade in shrubby woodland near the summit of the lookout (ca. 50m asl), I disturbed a number of female *Heteronympha merope*, and close by saw several *G. klugii* basking amongst leaf litter. The *H. merope* population was confined to the area of *T. triandra* (a well known larval host) and at some other sites where I found this satyrine in Tasmania I also noted the abundant presence of Kangaroo grass.

Just to the north of Bicheno is the Douglas-Apsley National Park, proclaimed in 1989 to preserve the State's last large dry sclerophyll forest. The reserve combines a region of open forested ridges, small pockets of cool temperate rainforest, river gorges and waterfalls, and can be traversed along a three day north-south walking trail. Here, in the rising heat of the early afternoon, I walked through dry sclerophyll forest to an attractive waterhole and scenic lookout (ca. 200m asl) which overlooks the Apsley River. Five common butterflies were encountered during 30 minutes of observation and these comprised many *H. penelope diemeni*, both sexes of *H. merope*, a few worn *G. klugii*, and once again a small number of *P. rapae* and *J. villida*; all to be expected in this habitat both in Tasmania and on the mainland.

Perhaps seeded by my unsettling experience at Barilla Bay (see part 3), I perceived this to be another 'lonely spot', in spite of the presence of a few other visitors. I sensed an eerie feeling like a 'death spirit' had descended in the general area. A peculiar fear, one not experienced in far more remote places I have visited in search of butterflies over the years. Indeed, nor during some 'heart-stopping' moments such as when I lost my footing and stumbled adjacent a cliff edge near Carnarvon Gorge in 1980 during an attempt to net a rare Ant-blue butterfly (*Acrodipsas* sp.), and later, when I disturbed a young taipan near a ford in savanna-woodland at Jourama Falls in 1991. Yet sporadically between Barilla Bay and Douglas-Apsley a clammy feeling recurred at three or four places!

Now, to reinforce this emotion indelibly, someone began operating a firearm from one of the nearby ridges. It may have been just a Park Ranger removing vermin, but after a rally of shots, and not wishing to chance a stray bullet from an irresponsible user or potential lunatic, I left

immediately! Fortunately, hereafter this bizarre anxiety departed permanently. Yet, illogical as it seems, I was so convinced I could have been shot in south-eastern Tasmania I relayed my concerns to Nigel Quick immediately on my return to Melbourne! Perhaps my fear was some form of sensory 'crisis apparition'- a vague prescience of the Port Arthur massacre? Those readers of romantic imagination or who give some credence to premonitions and the paranormal might well ponder this. But, it goes without saying, that to hear of the tragic loss of many lives on the nearby Tasman Peninsula a few weeks later was disturbing to say the least!

After departing St Helens on the east coast, I ascended into the wet-forested montane region of north-eastern Tasmania, and during late afternoon slipped in a visit to the St Columba Falls (ca. 300m asl) situated south-west of Pyengana. The falls are the focal point of this rainforested reserve and plunge nearly 100 metres from the Mt. Victoria foothills to the valley of the South George River. Along the road through open forest to the falls *H. merope* appeared locally common. The St Columba Falls car park, however, was devoid of *H. merope* as it is situated in wet open forest merging with cool temperate rainforest in which this satyrine does not seem to penetrate.

It was now about 5:30pm and getting a little late for butterfly activity amongst the ever lengthening shadows being cast over the *Nothofagus* forests about the falls. Nevertheless, whilst ambling along a damp, deeply shaded, walking trail I almost trod on a male *H. p. diemeni*! This was surprising as it is a very swift and alert species - hardly one to be easily trampled - and, furthermore, I did not anticipate seeing this butterfly or any others in such dense forest.

It lay on damp ground, in deep shade, with wings fully opened (normally the species rests with wings closed when not basking) and seemed in good condition. As I extended my hand it tried to flap its wings, yet was unable to raise them significantly - no more than a centimetre above the ground in a quivering fashion. At first, I thought that it may have been attacked by a bird, but it showed no obvious damage or cause for fatigue or weakness. Indeed, after several minutes it seemed to die. Except for misadventure, I have not previously observed the natural death of a butterfly in its habitat. Given its weak condition, and a quicker than usual rate of thoracic muscle decay I think it may have succumbed to a bacterial infection.

Situated at the mouth of the Tamar River on the northern coast, George Town (named after King George III) was settled by Europeans in 1811. I stayed overnight here. During the morning of March 12th, I searched to the east about the Bridport area for likely habitat of *Hesperilla mastersi marakupa*, a purported endemic subspecies known only from a single site just south of the town. The original type site, which Couchman (1965) stated comprised "swampy heathland", has been destroyed, but the scrubby heathland habitat which more or less dominates this coastal area appeared quite unlike what I would anticipate Masters skipper to occupy. In 1992 I examined the holotype female of *marakupa* in the ANIC, Canberra, and as I could find no major points of difference between it and mainland material I have developed some reservation as to its subspecific validity. Moreover, doubt even concerning the label data's reliability has been expressed recently by McQuillan (1994).

My mind, clouded by disappointment, scepticism and doubt, judged any further search about Bridport a waste of time. I returned inland to Scottsdale and ascended into the upland forests near Springfield, where on The Sideling Range at about 350m asl, and again close by near Targa (ca. 550m asl), I encountered allegedly nominate populations of *Graphium macleayanus*. Much to my delight, several adults were active in wet eucalypt forests and fern glades where they occasionally descended to feed with *Vanessa itea* at blackberry flowers along the roadside. Its habitat in this region was not unlike some parts of montane eastern Victoria where, during summer, the species can be locally abundant.

Because the Macleay's swallowtails were now active in the tree-tops I managed to secure and examine only a single female. She had semi-obscure subterminal spots on the hindwing above (rather atypical of nominate adults from central Victoria), but in agreement with mainland specimens, possessed a fully developed forewing postmedian spot between veins M2-M3 and the median and postmedian distal extension to the greenish-white central areas of the forewing between veins CuA1 and 1A+2A. This Targa adult resembled the 'cold climate form' - a mainland environmental form characterised by a subterminal and postmedian silvery sheen to the hindwings beneath. I have encountered corresponding adults in montane areas of eastern Australia north to at least the Barrington Tops in New South Wales, and it is also characteristic of *moggana* populations. This silvery sheen is environmentally controlled being lost when adults are reared at higher temperatures (Dunn & Dunn 1991).

A butterfly tour of north-eastern Tasmania would be incomplete without a visit to Mount Barrow, a famous collecting site among an earlier generation including the late Dr Norman Tindale who sampled there in January and February 1948 and the late 'Zoo' Le Souef who visited in March 1965. Mount Barrow is renowned for its disjunct population of *Heteronympha panelope panope* which occurs above about 760m (Common & Waterhouse 1981), an altitudinal limit which I confirmed on my visit by sampling at regular intervals along the road. The Mount Barrow picnic area is surrounded by wet alpine forest at an estimated altitude of ca. 900-1000m asl; located just before the steep climb which winds up through windswept beech forest to the plateau. In the picnic ground adults were locally abundant and some were in fresh condition. Both sexes of this rather diminutive rounded-winged form, said to be *panope* by Tindale (1952) but seemingly unique in my judgement, were in similar numbers (unlike *H. p. diemeni* which had a strong male bias in all populations encountered). Males patrolled territories in open areas, but females were encountered fluttering above soft grasses (*Poa* spp.) in forest glades in company with *Oreixenica lathoniella lathoniella*, another common satyrine at this locality. An unusual soft grass with a rigid, barbed wire-like, seed head was conspicuous in areas where the *panope*-like populations occurred.

After ascending steeply into the dwarfed beech forest no more satyrines were about, albeit that Tindale reported *H. p. panope* to occur beyond the beech forest up to the bare rock slopes at 3800 feet - about 1158m). The only butterfly to be seen was an occasional admiral (*V. itea*) basking on rock slides in clearings just below the actual plateau - at a significantly higher altitude than the limit of about 915m previously recorded for the species (Couchman & Couchman 1977). Upon reaching the rocky plateau, which is about 1300m asl, I took a break for lunch.

In spite of the altitude the shade temperature was a pleasant 20°C, and the sky was cloudless and without breeze - marvellous conditions for butterfly activity. However, this bleak landscape, densely clothed with low stout and rigid alpine herbs, and shrubs interspersed with an array of mosses, seemed to harbour disappointingly few species. It was here that 'Zoo' Le Souef collected his series of *Neolucia hobartensis*, and on my visit (March 12th) it was in swarms. Adults varied in wing condition from fresh to very worn, and flew low over tiny herbs settling to feed at alpine flowers. With such large numbers present I randomly sampled 17 individuals in order to determine the male:female ratio which proved to be about 2:1. Apart from this alpine lycaenid and several Cabbage Whites no other species were active on the summit plateau between 12 and 1pm.

After descending Mount Barrow I headed south-west via Launceston to Deloraine with ambitious plans to explore the central highlands and western shore of the Great Lake late that

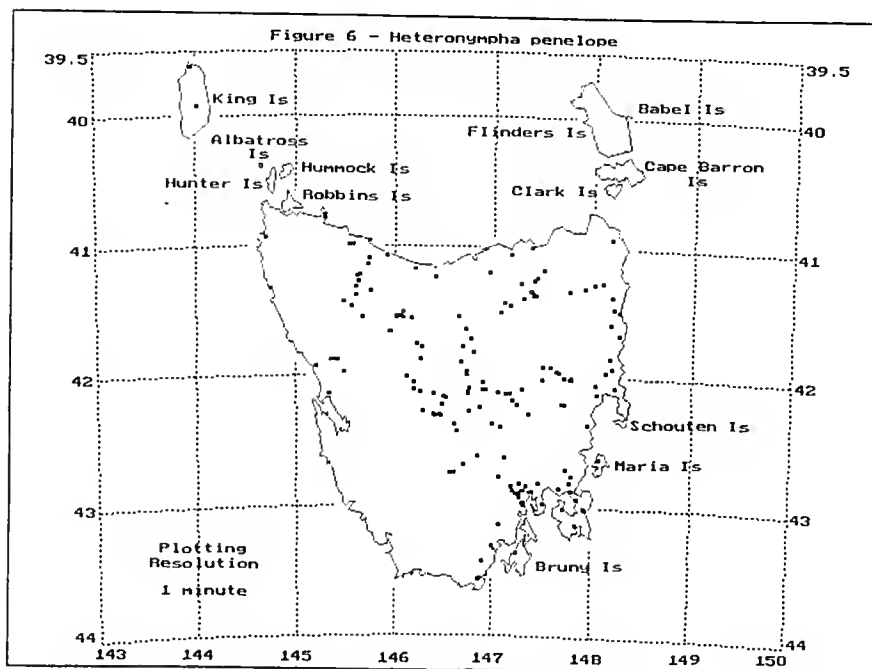
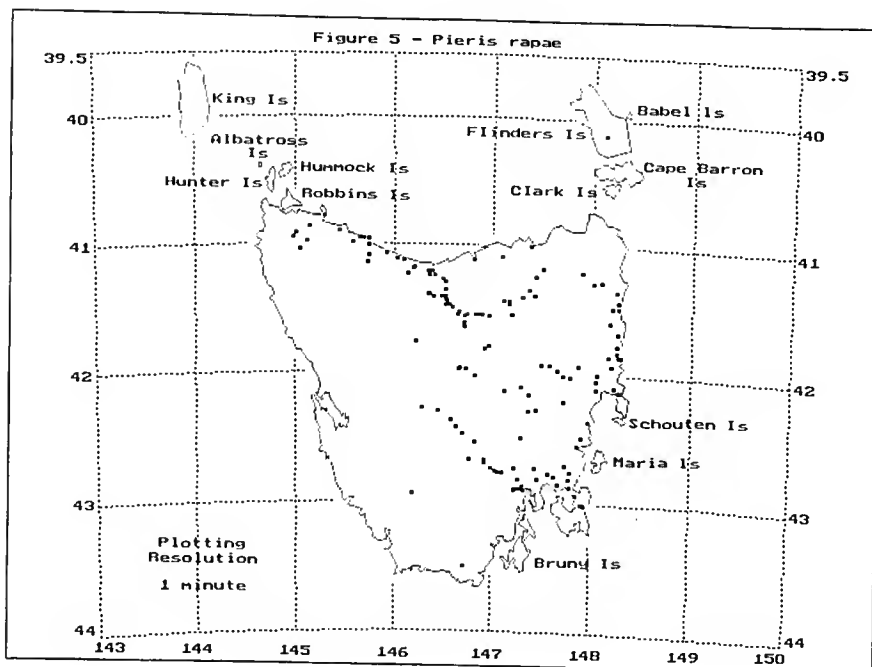
afternoon. There I hoped to observe one or more of the alpine xenicas and find the small highland dominula skipper which inhabits this region.

Continued as Part 5

The following maps (based on records held in the Dunn & Dunn National database) show the available distribution of two common resident species, *Pieris rapae* (figure 5) and *Heteronympha penelope* (figure 6). The former seems to have many records from lowland areas where the introduced host plants are grown. The satyrine, however, has a more or less continuous distribution over much of the State, but populations do seem a little sporadic at higher altitudes, and there are still obvious gaps where the species ought to occur because of the relative inaccessibility of some regions to most visitors. Both maps represent a significant update on those provided earlier by Dunn and Dunn (1991) and McQuillan (1994). The subspecific status of some *H. penelope* populations, particularly those in the north-west, are rather difficult to define so I have not specified distributions below species rank.

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Some Field Notes on the as yet Unnamed *Ogyris* species (Formerly included in the species *Ogyris idmo halmaturia*) from Waikerie.

M. Moore
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History

The *Ogyris idmo* "group" has always been in large part a mystery to Lepidopterists in Australia, even though the species has been known to the Natural History community for well over 100 years. The Western Australian subspecies *O. idmo idmo* has been much better collected than the eastern Australian *O. idmo halmaturia*. For most of the 100 years it was thought that only one species existed but observations made over the last 10 years have thrown open the whole question of the status of the butterflies within this group.

Collecting any specimens in this group has been a great desire of myself and my family and probably rates highly in the desires of any Lepidopterist. After 16 years in Waikerie we found a population of butterflies of this "group", and it now seems certain that this is a separate new species that has been collected in the past and put under the label *O. i. holmoturio*. Subsequently two populations of the butterfly have been found but one of the populations (seemingly the most numerous) is in quite an unusual situation which because of its location must be considered at some risk.

The first specimen collected in this district was in May 1992, when a single female was collected by hand by a neighbour living about 1 km away from my house. This female was caught on a cold but sunny day sitting on a lawn beside their home. The specimen was picked up by the fingers and transferred to a jar and thence frozen. Apart from the finger mark on the apex of one forewing the specimen was in perfect condition, and after subsequent observations it is likely that the specimen may well have originated in the bush garden that they have around the house. My next specimen was collected the next weekend about 5 kms away when fate intervened and I hit one with my car. As luck would have it, firstly I detected that I had hit a "purple" butterfly, secondly that the specimen stayed on the front of my car until I could stop, and thirdly that the only damage to yet another perfect specimen was a lesion in the abdomen of this female. The location of this second specimen has provided me with the bulk of my observations and of my specimens.

From my available references I had some difficulty in identifying these specimens. I was fortunate enough to have a single but perfect specimen of a female *O. idmo idmo*, but the specimens did not immediately suggest a subspecies of *O. idmo*, because the colour, shape, size and underlying pattern were all at variance with what I expected to see. On showing the specimens to R. Fisher he cautiously suggested that it probably belonged to the *O. idmo* group and that (in the light of further evidence) it could be labelled as the *halmaturio* subspecies. Once again Bob's cautious words have proved to be most laudable. Meanwhile I had written to several friends of my find and of my uncertainties. The Lepidopteran grapevine worked so well that in mid October '92 I was contacted by Ross Field who was and still is working on the *O. idmo* complex. Fate again intervened and my son David caught a third female on October 23rd 1992 very close to our previous "collision". This third female was quite battered. I reported this to Ross Field and he suggested that I started to look for eggs as he had found them in Western Australia.

At the very first tree on which I looked I found some very old egg cases. Across the road on only the third tree I found hundreds of egg cases. All of these proved to be eaten out but the

find was of course a tremendously exciting one. At the base of these trees were the nests of a medium sized black and orange *Campanotus* ant subsequently identified as *C. terrebrans*. Searching to the south of this site I subsequently have found about fifty trees with nests of these ants and almost all of them proved to have eggs or old egg cases on them. Searching to the north amongst a much less natural roadside verge I have found no trees with either eggs or ants.

The ant nests are located at the base of the trunk of the trees and are generally easy to spot because of the ants tendency to create cleared raised areas of orange red sand at the entrance to the nest. Usually many exits to the nests exist. I was amazed at just how many nests there were in the two kilometre stretch of roadside along which the butterfly was located and also by the fact that most ant's nests had "scores" of egg cases on them. This seemed to indicate a long term resident population of butterflies in this location.

The eggs are laid on the bark of the tree at or near the entrance of the ant nests, often below the level of the raised sand surface. There seems no obvious effort to hide these eggs under bark or out of sight, indeed some of the species of tree selected are smooth barked at this point of the trunk and don't offer any opportunities to hide the eggs. The eggs are generally easily spotted. I have found eggs cases about 30 cms above the ground but this is most uncommon and they are usually laid within 5 cms of the ground level. The area covered with egg cases can be so thick that the actual bark in some areas is difficult to see, and trees for what ever reason previously unladen have rapidly gained a thick covering of egg cases.

The nests are usually at the bases of a variety of local Eucalypt species [*E. oleosa*, *E. foecunda*, *E. pileata* ,] but some Sandalwood, [*Myoporum platycarpum*] trees have nests and eggs present. Eggs have also been found on exotic Eucalypts in garden situations but *Campanotus* ants have also been present on these trees. The eggs are invariably laid on the trunk or closely associated bark, but very occasionally on debris or rocks.

Field Observations

Ross Field's experiences in W.A. had seemed to indicate that the males could be caught amongst the trees in the morning and the females amongst the trees in the afternoon. My experiences here have shown somewhat different tendencies.

From the late October collection of the above mentioned third female specimen to the middle of January very regular walks were carried out during all parts of the day along the whole 2 km stretch through which ant nests had been found. In all that time the only specimen encountered was a male caught at about 6 pm on Dec. 10th. 1992.

It wasn't until the 18th. of January 1993 that we saw some more of this species, when at about 3 pm. we saw two females fly from what appeared to be mid way up a tree at the very southern end of the walking track. From then on we concentrated our searches in that area, and regularly saw females usually at least one but sometimes up to four. By the beginning of February we had a reasonable collection of females (mostly worn) but only two males.

Our big break came on Feb 2nd, late one evening when my son David chased a female into an accompanying field. To our amazement butterflies seemed to come up from everywhere within the open grass and weed infested field. On this evening we estimated that we saw about 30 butterflies and caught eight. Six of them were males. The scene of operations

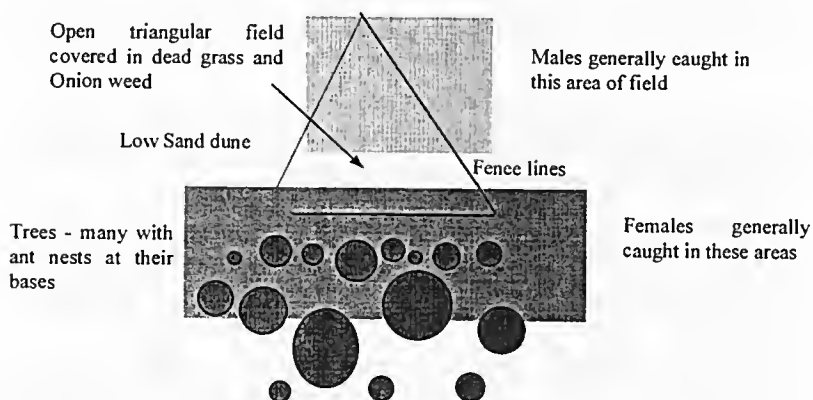
changed from the path and trees to this small triangular shaped paddock approx. 150 M on each side. On every occasion we visited the field from then until May 2nd we saw adults flying.

In the 1993/94 season we caught our first butterfly on Sept. 26th. and they were reasonably common up until Oct. 7th. { On the Oct. 2nd 1993 we saw about a dozen butterflies. }

Females are almost always caught close to the trees that harbour the ant's nests. The males are usually caught further out in the paddock. In the main, the males seem to be content to sit on the dead plants (usually Onion weeds) in the field rising only when alarmed, whereas the females seen flying or fluttering in the vicinity of the trees seem to be involved in looking for sites for egg laying and indeed have been observed to lay eggs at the entrance to the ants nests. Having said this, occasionally males fly through the paddock during the middle of the day in what might term "purposeful flight" and may be searching out females to mate with.

My suspicions at this time are that in this locale, the females hatch in the morning and fly into the nearby field there sitting and waiting. The males sitting in the field are either stimulated to rise by the maiden flight of the females or find them by flying over the field. Once impregnated the females remain close to the trees with the ants until they have laid their eggs.

In the field (quite literally in this case) the adults seem to prefer to rest on onion weeds that rise about 70 cms. above the ground. When disturbed they rise from these stems and flutter away with some purpose though not quickly at about one metre from the ground. When flying they look like medium sized black butterflies, and it is difficult to distinguish males from females unless one is closely following, when the yellow spots can sometimes, though not always be seen. To capture them usually requires a quick chase during which the flight direction can be lost as it flies against the background of the grass and weeds. When severely alarmed they can rise quickly to the height of a tallish mallee tree and slowly descend as they fly away finishing after about 100 m or so again at the height of the weeds and grass.



When netted they, like other low flying species, will not always rise easily into the apex of the net and present a few anxious moments as they flutter close to the net's rim on the uneven

surface presented by ground or plants. Occasionally the females in particular will remain motionless on the ground even going to the trouble of laying over on one side, presenting the camouflaged underside of their wings, possibly in an effort to hide.

The majority of the specimens seen or collected have been in this field or along the track immediately beside it. Only a handful of specimens have been seen amongst the trees of the ten metre wide tree verge though the presence of eggs on the trees would indicate that they must fly there at times.

Egg Laying Behaviour

As most of the trees are low with dense crowns and / or have plant material close to their bases, the females have to flutter around the base of the tree in an effort to get to the ant nests, but when the females land they land on the tree and I have not observed them landing on the surrounding ground and walking to the tree, nor have they been seen landing higher in the tree and walking down to the base as does *O. genoveva*.

In early breeding experiments where female butterflies were entrapped over the ants' nest the ants were seen to attack and kill the female butterflies. It would seem therefore that in the field the females must lay their eggs at such times or on such trees when ant activity around the nests of those trees is very low. This is usually in the mid afternoon when the sun, in this Waikeri location is shining onto the tree bases and the ants have retreated below the surface. I would suggest that in the normal course of events the number of eggs laid in any one location would be in part dependant on the peace in which the female butterfly is left to lay.

Eggs

The eggs themselves are about 1 mm in diameter and hemispherical in shape. Their colour varies from white through grey to black, but blackish eggs predominate. The blackish eggs have a distinct grey ring about four fifths of the way up the egg. They are covered with small depressions and the micropylar region has a deeper pit. Having now collected *O. otanes* eggs I can only say that the eggs of the two species are almost identical. A few days before the eggs hatch the micropylar region and the surrounding shell start to fall in and the egg loses its hemispherical shape.

The hatching time of the eggs in the field has not been determined, though observations have been made in the artificial situations described later, that would suggest that the egg hatching times are related to the climatic conditions. In January the eggs took eight to ten days to hatch but eggs laid on Sept 28th did not hatch until the Oct. 16th. Other observations made of these home hatched eggs shows that the eggs from each clutch hatch all at the same time (not over a number of days!) and all of them at night between 2 am. and 6 am.

Larvae

The resulting caterpillars are white, usually with a definite pink dorsal line, (though some, are all white.) They have four large curved hairs on their posteriors that project to the rear and two shorter forward facing hairs at the anterior end. The caterpillars always move downwards from the egg cases showing no inclination whatsoever to climb upwards. Once at the bottom of the jar they simply sit, not moving voluntarily. They will move however when gently encouraged. When startled or frightened the caterpillars will rise up, most usually on their hind parts with their heads in the air but sometimes they will rise up on their forelegs lifting their rears into the air.

Caterpillars introduced into ant nests have been seen to do the later thrusting their four bristles and anal plate into the face of the inquisitive ant, who then grasps the caterpillar in its jaws and carries it below.

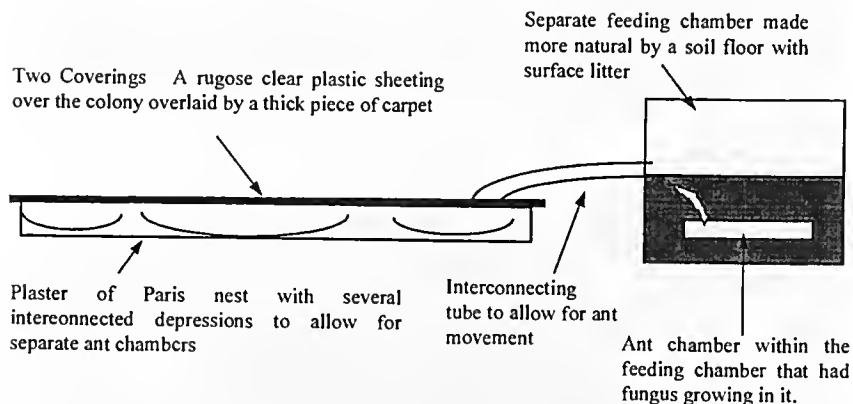
The only other stages that have been observed in the field have been the adults.

My observations of the caterpillars have raised more questions than provided answers. Upon hatching the caterpillars will happily move onto any plant material and through the microscope can be seen to be using their jaws to test the material, it is however almost impossible to get them to even walk onto ant brood. They "buck" or turn away and simply will not walk onto it.

I have tried the caterpillars with every plant in the location, on mallee tree roots and artificial foods such as apple and although the caterpillars seem keen to eat they have not done so. I have even tried them on fungus found growing in tunnels of an ant feeding chamber but again the caterpillars would not eat.

Ant Colony

At Ross Field's suggestion I set up an artificial ant colony. I made a purpose built horizontal colony with separate chambers and separate feeding areas and I kept this colony going for over one year but had no luck in raising any caterpillars. As the initial idea was that this might be a parasitic species I made sure that ant brood at various stages of development was always available.



Breeding Experiments

Females of this species are very easily induced to lay eggs in artificial situations, and if they do not lay one tends to suspect that they are either virgins or conversely have completely laid their load.

(There could of course be other factors - see below.) Ross Field had told me that he had been able to get females from his WA population to lay eggs easily in artificial or semi artificial situations. That too has been my observation.

In our experiments I used a 60 cm fish aquarium and put a thick layer of local scrub sand on the bottom. At one end I constructed an artificial "tree base" using pieces of wood and bark. Some of the wood pieces came from around the ant nests found in the field and sand from those locations was also used to give the structure the right "smell." When fresh "smelly" material was not used success was not usual. The aquarium was then covered over with glass and placed in a quiet darkened room (curtains closed .)

The females used were caught in the late afternoon of the previous day and kept in a small jar, covered with a cloth. They are quite quiet and do not flutter in the jar if they can't see the light. They invariably remained quite still with wings and antennae laid back until about 1 pm the next day when they started to walk around the jar and to taste the air with their now mobile antennae. The female was then introduced into the aquarium at the end opposite to the "tree base" and onto the ground. She usually then walked (flying space was severely limited) or fluttered to the "tree base", quietly walking over the structure laying her eggs. The transition into an egg laying mode was often quite quick. This technique was used on a large number of occasions and the females laid about twenty to forty eggs although on one occasion one female laid ninety eggs. When finished laying the females try hard to get out of the aquarium, flying against the glass constantly. All of the above has been video taped.

Occasionally females that were caught and placed in this situation would simply sit on the upright pieces of bark provided remaining largely motionless for two or three days, and lay no eggs, and were totally uninterested in getting away. Might we here be seeing the behaviour of virgin females, waiting for a male?

Subsequent Activities

The eggs were allowed to hatch and the caterpillars used for observation, or for placing into the artificial ant colony but at least 95% of the caterpillars were subsequently released back into the wild.

Because the caterpillars sat motionless on the bottom of the hatching jar they were easily brushed up with a soft paintbrush and placed in short lengths of clear plastic tubing which could be corked at both ends. In the evening of the day of hatching one of the corks was removed and the open end of the tubes placed in the entrances of ant nests that had eggs present. On inspection the next morning the tubes were always found empty. Occasionally interaction such as described earlier was observed between ant and caterpillar with the ant carrying the caterpillar below.

Conclusions

The location of the egg laying, the time of egg hatching and the downward only movement of the caterpillars leads me to suggest that the caterpillars hatch at night and move straight into the ants' nest. What happens next is unclear ; the caterpillars' complete disinterest in ant pupae but interest in plants I find perplexing and might indicate that it is not carnivorous but may instead be fed by the ants.

Site Concerns

The flora and fauna of South Australia has been under threat ever since the development of the State by white settlement and the substantial tree and scrub clearance that followed.

This site is an example of this legacy and continues to exist more because of good luck than good judgement. The area in which most of the specimens have been caught is very small and part of a wineries vineyard holding. The vineyard has fenced off the paddock, but has proceeded to plant vines right up to the boundary and the actual flying area of the butterfly has been substantially reduced. In other close locations that would initially seem suitable the sand at the bases of the Eucalypts has been substantially damaged by the activities of rabbits destroying any efforts by the ants to colonise more widely. The breeding trees are part of a roadway verge and beside a track used to maintain the power lines that are overhead. For some reason this site has avoided all the potential damage but must be considered at risk. My collecting of this butterfly has been done over an extended period taking only a few specimens at a time. Few eggs have been taken by me from the wild and no effort has been made to dig up any ant nests. Caterpillars hatched from captured females have been returned (safely I hope to the wild!)

Without human interference the colony might survive for many more years but the activities of vineyards and collectors can destroy it quickly. It is imperative that it be maintained for future generations to enjoy and marvel at. These statements are indeed true of most S.A. locations and it is imperative that interstate collectors realise this and resist the temptation to collect large numbers to have a series or for swapping. Butterfly collecting in this State is hard work and the sites and numbers of butterflies is small.

Acknowledgments

I would like to thank my wife Marion and my children (particularly David) and Ross Field for their involvement, and their help, advice and encouragement. I would also like to thank Lindsay Hunt for his enthusiasm and interest and for his critical reading of this paper.

RECENT ARTICLES OF INTEREST

Compiled by Ian Faithfull

Gunther, K., 1998. Nursery's bug battles. *Weekly Times* 4 March 1998 p.9. The use of nematodes to control black vine weevil, *Otiorynchus sulcatus*, and fungus gnats (Sciaridae) in a Timboon plant nursery has eliminated the need for expensive chemical treatments. The nematodes are purchased for \$30 per punnet of 50 million. CSIRO is pursuing commercialisation of the treatment.

Bannister, S., 1998. Beetle attack on broom. *Whittlesea Post* 15 April p.1. Nicole Freeman of the Keith Turnbull Research Institute and Parks Victoria staff released the English broom seed-feeding beetle, *Bruchidius villosus*, at Kinglake West, the first release of this biological control agent in Victoria. Subsequent releases were made at Creswick, Beechworth, Mitta Mitta, Mt Beauty, Omeo and Bright.

Gunther, K., 1998. All-out war on thistle menace. *Weekly Times* 13 May p.24. Thistle stop! *Kilmore Free Press* 17 June 1998 p.15. Biological control of thistles involves a number of agents which have been released at over 70 sites across Victoria. Agents showing the most promise include the spear thistle gall fly, *Urophora stylata*, and the receptacle weevil, *Rhinocyllus conicus*. A gall fly release site at Kilmore East.

Strahan, N., 1998. Savior role for humble moth. *Frankston Standard* 18 May p.4. A leaf-rolling moth, *Tortrix* sp., tested at the Keith Turnbull Research Institute for biological control of boneseed and bitou bush.

Wembridge, M., 1998. Fly puts bite on boneseed. *Herald Sun* (Melbourne) 19 June; Turnbull fly set to 'bomb' boneseed. *Frankston Standard* 23 June p.10; First Australian releases of the lacy-winged seedfly, *Mesoclanis magnipalpis*, a biocontrol agent for boneseed, at the You Yangs Regional Park and Frankston, by KTRI. Fly larvae eat the fruit and restrict seeding.

Bug puts bite on boneseed noxious weed problem. *Sunraysia Daily* (Mildura) 7 July 1998 p.1. A biological control agent, the bitou tortoise beetle, *Cassida* sp., released at Cardross near Mildura. [cr. D. Lang]

Macguire, P., 1998. Wasps killed my 'mate'. *Herald Sun* 17 May pp. 2-3; O'Neill, G., 1998. Horse death riddle. *Herald Sun* 17 May p.2. A horse dies of anaphylactic shock after being attacked by a swarm of *Vespula germanica* on the Cobungra River, east of Mt Hotham. "I noticed Rasy stumping around and thought he had been stung by an ant. A moment later a swarm of wasps rose out of the ground and covered him, stinging him unmercifully. I rushed to help and tried to mount and gallop away, but the swarm attacked me, too. I was only able to escape by crashing through the tea-tree on the bank and throwing myself headlong into the river. Even so, I was stung about 50 times on the neck, ears, face, head and hands ... I sat in the water and plucked about 100 drowned wasps from my jumper ... It took days of searching before I found his body lying in thick bush ... This is the first year I have seen European wasps in the alps; the mountains will never be the same. In future I will carry antihistamines, cortisone and adrenalin in my saddle bag." (Macguire). Two senior veterinary researchers said they knew of no previous cases of wasps killing a horse. Dr Sally Church stated that "it would only take one earlier sting to sensitise the animal's immune system" and precondition it for a later hyper-allergic reaction. (O'Neill)

Macguire, P., 1998. Plague a priority. *Herald Sun* 17 May p.3; Joint attack on wasps. *Frankston Independent* 23 June 1998 p.22. Conservation and Environment Minister Marie Tehan puts the European wasp problem at the top of the agenda for the Environment Ministers conference in New Zealand.

Myers, F., 1998. Super grub new threat to crops. *Weekly Times* 16 September p.9. More than 60% of populations of budworms, *Helicoverpa armigera*, tested by NSW Agriculture are resistant to carbamate insecticides and up to 25% of these are the progeny of resistant parents. The "super bugs" threaten the viability of summer cropping.

Spinks, P., 1998. Why this tiny beetle has scientists agog. *The Age* 29 September. Two specimens of a new species of Ommatidae captured in flight intercept traps in the South Australian mallee are reputedly "Australia's oldest living species ... whose ancestral roots stretch back almost 200 million years".

Turner, J.R. and Hawkeswood, T.J., 1994. A note of the larval host plant and biology of *Melobasis apicalis* Macleay (Coleoptera: Buprestidae) from Australia. *Giornale Italiano di Entomologia* 7: 97-102. *Bossiaea rhombifolia* the host plant.

Turner, J.R. and Hawkeswood, T.J., 1995. A note of the biology and host plant of *Cisseis* sp. near *C. nitidiventris* Carter (Coleoptera: Buprestidae) from Australia. *Mauritiana* (Altenburg) 15(3): 313-316. Larvae in gall-like swellings on roots of *Dillwynia retorta*. Data on larval hosts of other *Cisseis* spp.

Hawkeswood, T.J., 1995. A record of a bite to a human arm from a species of *Opisthoncus* (Arachnida: Salticidae) in Australia. *Mauritiana* (Altenburg) 16(1): 37-39.

Hawkeswood, T.J. and Turner, J.R., 1996. Further notes on the biology and food plants of the Australian belid beetle *Rhinotia haemoptera* Kirby. *Spixiana* 19(2): 183-186. New observations of adult food plants - 4 spp. of *Acacia* and 1 of *Hakea*.

Williams, G., 1998. Bee pollination in the threatened Australian shrub *Senna acclinis* (Caesalpinioideae). *Cunninghamiana* 5(3): 767-772. The shrub is restricted to rainforest remnants in NSW and Qld and is pollinated by a diverse assemblage of generalist native bees, three of which are buzz pollinators which release pollen from the anthers by vibration.

Thanks to T.J. Hawkeswood and Deb Lang for contributing material.

Readers are invited to forward items suitable for inclusion in "Recent Articles of Interest" to the compiler at 7/30 Finlay Street, Frankston, Vic., 3199.

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DIARY OF COMING EVENTS

Friday 19 February General Meeting

David Stewart will present a talk on:

“Introduction to Apiculture”

The Society's meetings will now be held at 215 Franklin Street, Melbourne
(Opposite the Queen Victoria Market) Melway reference Map 2F B1

Friday 19 March Council Meeting

Friday 16 April General Meeting

Patrick Honan will present a talk on the Butterfly House at the Melbourne
Zoological Gardens

Friday 21 May Council Meeting

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